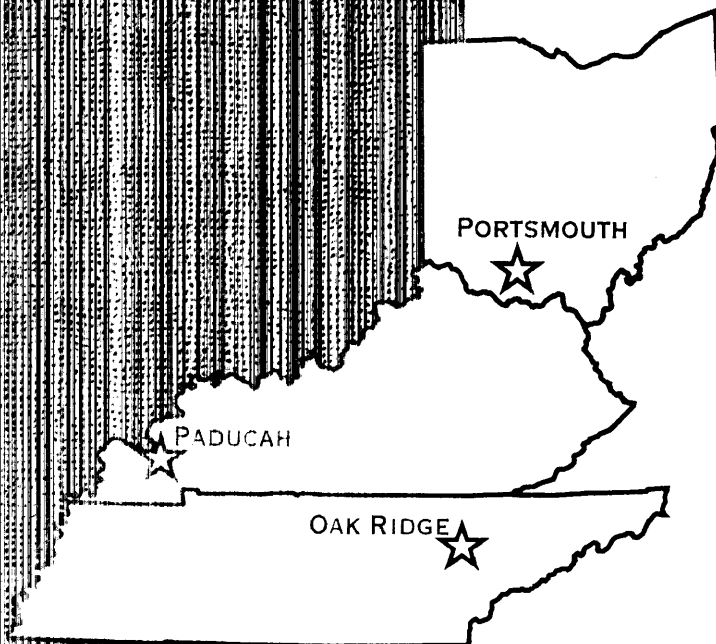




BJC/PAD-360

ENVIRONMENTAL MANAGEMENT  
& ENRICHMENT FACILITIES  
MANAGEMENT AND INTEGRATION CONTRACT

**Final Inventory/Characterization  
Report for the OS-03  
Department of Energy  
Material Storage Area at the  
Paducah Gaseous Diffusion Plant,  
Paducah, Kentucky**



MANAGED BY  
BECHTEL JACOBS COMPANY LLC  
FOR THE UNITED STATES  
DEPARTMENT OF ENERGY

This document has received the appropriate reviews  
for release to the public.

**Final Inventory/Characterization Report for the OS-03  
Department of Energy Material Storage Area (DMSA)  
at the Paducah Gaseous Diffusion Plant,  
Paducah, Kentucky**

Date Issued -- September 16,2002

Prepared by  
WESKEM, LLC  
Under subcontract 23900-BA-RM005F  
Prepared for the  
US Department of Energy  
Office of Environmental Management

BECHTEL **JACOBS COMPANY** LLC  
managing the  
Environmental Management Activities at the  
East Tennessee Technology **Park** .  
Oak Ridge Y-12 Plant                      *Oak Ridge* National Laboratory  
Paducah Gaseous Diffusion Plant                      Portsmouth Gaseous Diffusion Plant  
Under contract DE-AC05-98OR22700  
for the  
U.S. DEPARTMENT OF ENERGY



This report is an abridged edition. The following sections have been omitted from this report, but are included in the full report.

OS-03 DMSA ZONE MAP

HP SURVEY DATA

SME INSPECTION / SAMPLING SUMMARY

OREIS CHARACTERIZATION REPORT

RFD FORMS

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## ACRONYMS

ADC	Authorized Derivative Classifier
BEF	Equipment Field Blank
<b>DMSA</b>	Department of Energy Material Storage Area
DOE	Department of Energy
dpm	Disintegrations per Minute
EPA	Environmental Protection Agency
ft <sup>2</sup>	Square Feet
ft <sup>3</sup>	Cubic Feet
HP	Health Physics
IH	Industrial Hygiene
lbs	Pounds
Lc	Level Sub C
LLW	Low Level Waste
MDA	Minimum Detectable Activity
MFL	Millers Fluorinated Lubricant
MS	Matrix Spike
NCS	Nuclear Criticality Safety
OREIS	Oak Ridge Environmental Information System
OS	Outside
PCB	Polychlorinated Biphenyl
PEL	Permissible Exposure Limits
PGDP	Paducah Gaseous Diffusion Plant
RCRA	Resource Conservation and Recovery Act
RFD	Request for Disposal
RMA	Radioactive Material Area
RPD	Relative Percent Difference
SAA	Satellite Accumulation Area
SME	Subject Matter Expert
<b>SVOA</b>	Semi-volatile Organic Analysis
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TIO	Technical Information Officer
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
UF <sub>6</sub>	Uranium Hexafluoride
USEC	United States Enrichment Corporation
<b>VOA</b>	Volatile Organic Analysis

## EXECUTIVE SUMMARY

Department of Energy Material Storage Area (DMSA) Outside (OS)-03 is located east of the C-611 Water Treatment Plant Settling Basins. It occupies approximately 175 square feet (ft<sup>2</sup>) and is covered by an open sided, metal top shelter. This DMSA is also identified as Solid Waste Management Unit (SWMU) #214. OS-03 was originally designated as a Phase 1 DMSA (expected to have no fissionable material but not fully characterized). The characterization process began in March 2001. There were several items identified in the DMSA that were of a mixed nature with most of the items being 55-gallon drums filled with oil related debris. All material located in the DMSA has a volume of approximately 356.7 cubic feet (ft<sup>3</sup>) and a weight of approximately 5,285 pounds (lbs). Characterization of the material in the DMSA was completed in March 2002. The closure of the DMSA was delayed by sample analysis completion. This DMSA now qualifies as a Phase 3 DMSA since it is fully characterized and contains no fissionable material.

### RCRA/Mixed

In October 1998, a 55-gallon drum containing approximately 20 gallons of kerosene was identified, characterized and transferred from OS-03 to the C-733 RCRA permitted storage area. A Request for Disposal (RFD) form is available for confirmation of the waste transaction. Because this transaction took place prior to the initial entry into DMSA OS-03 in March 2001, there were no Resource Conservation and Recovery Act (RCRA) items identified in this DMSA.

### TSCA/PCB

There were no Toxic Substances Control Act (TSCA)/polychlorinated biphenyl (PCB) items identified in this DMSA.

### Solid Waste

During the characterization activities, no solid waste was identified.

### LLW

The low level waste (LLW) inventory included drums, plastic drip collectors, an empty 500-gallon fuel tank, miscellaneous wooden items, plastic guardrails and an electrical breaker contactor. It also contained 10 items that were detectable polychlorinated biphenyl (PCB). These items included oil soaked rags, pads, mats, dirt, rocks, and absorbents. Materials were consolidated to the extent possible in an ST 90 container and waste collection drums. The waste collection drums were sampled and those with detectable PCB were properly labeled. In addition there were 2 drums with wall penetrations. One drum was empty. The other drum was sampled and overpacked. All items of equipment/material were given a barcode identification for future inventory control and equipment location identification. The LLW items remain in the DMSA.

### NCS

There were no Nuclear Criticality Safety (NCS) concerns identified in this DMSA.

### IH

All direct reading Industrial Hygiene (IH) data has been reviewed. No readings indicated airborne concentrations above a permissible exposure limit (PEL) or threshold limit value (TLV).

## HP

According to the Health Physics (HP) radiological surveys the highest alpha reading was 41 disintegrations per minute (dpm)/100cm<sup>2</sup> on an empty drum. The Beta/gamma readings were <Level Sub C (Lc), which is the lowest level of contamination instruments can detect based on area background.

## Safety

Stringent Occupational Safety and Health Act (OSHA) 1910.120 requirements for personal protection equipment (PPE) were mandated in OS-03 due to having drums of waste of unknown origin and/or contents and with compromised structural integrity. Initial entry into OS-03 was made utilizing Level B PPE. The drums of concern were sampled, characterized and handled appropriately. One drum required overpacking. OSHA requirements also dictated decontamination activities upon exiting the area. The Health and Safety Officer downgraded the stringent OSHA requirements only after obtaining results of area and point source monitoring. The direct read instruments used indicated no hazardous levels of contamination in the drums of concern. The remaining wastes in the area were characterized and handled by personnel in company issued clothing. No accidents or injuries were associated with OS-03.

The characterization activities were documented and photographed. The documentation has been retained in permanent files. Several photographs have been incorporated in this report.



# Starting Conditions in DMSA OS-3





## Starting Conditions in DMSA OS-3





## DMSA OS-3 View of Compromised Drum





## DMSA OS-3 Overpacked Drum



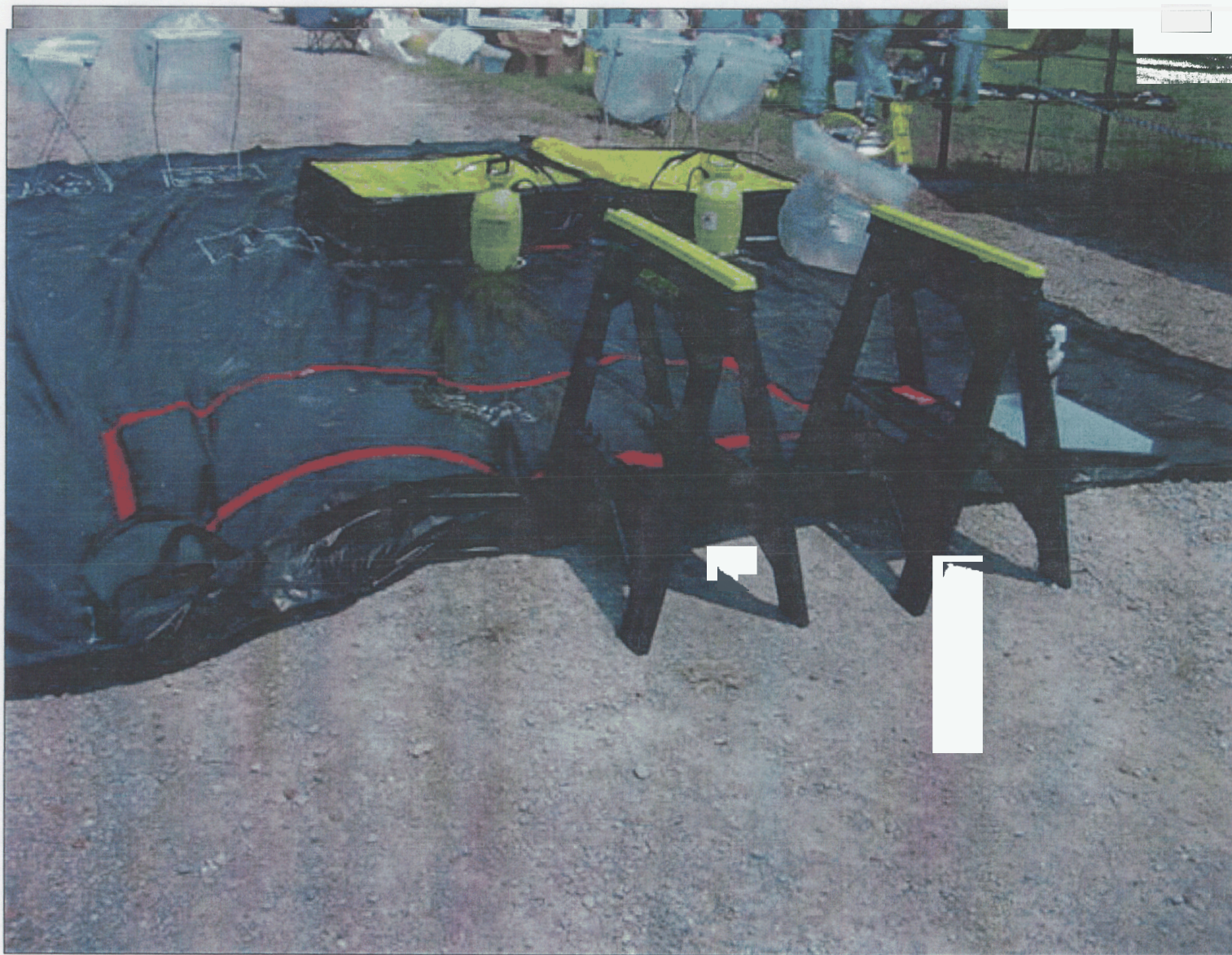


## DMSA OS-3 Drum Opening for Characterization & Sampling





## DMSA OS-3 Decon Line for Drum Opening Activities





## DMSA OS-3 Entry Team in Decon Line



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## DMSA OS-3 After Characterization and Remediation



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# Inventory And Characterization Report

Curr. Zone	Item ID	Barcode #	Description	Vol. ft3	llw	tsca	rcra	mix	asb	fis	ind	Gen. Date	Char. Date	Transferred To
<b>OS-03</b>														
ZONE 1	110639-01	DMSA0110526	OILY RAGS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110640-01	DMSA0110527	OILY RAGS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110641-01	DMSA0110528	OILY RAGS AND ABSORBENT MATS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110642-01	DMSA0110529	FLOOR SWEEP	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110643-01	DMSA0110530	OIL SOAKED BOOM	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110644-01	DMSA0110531	OILY RAGS AND PADS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110645-01	DMSA0110532	OILY RAGS AND PADS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110647-01	DMSA0110534	FUEL OIL TANK	60	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110648-01	DMSA0110535	TRASH	11.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110650-01	DMSA0110538	OIL SOAKED RAGS AND MATS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110851-01	DMSA0110537	OIL SOAKED DIRT AND ROCKS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110852-01	DMSA0110539	CLEAN OIL ABSORBENT	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110853-01	DMSA0110540	OILY RAGS AND RAGS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110854-01	DMSA0110541	OILY PADS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110855-01	DMSA0110542	OILY RAGS AND ABSORBENTS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110856-01	DMSA0110543	OILY RAGS AND PADS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110857-01	DMSA0110544	OILY PADS AND RAGS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110858-01	DMSA0110545	2 SPILL CONTAINMENT PANS.	7.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110859-01	DMSA0110546	WATER AND PAPER	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110860-01	DMSA0110547	PADS AND ABSORBALL	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110861-01	DMSA0110523	OILY RAGS FROM EMERGENCY GENERATOR	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110862-01	DMSA0110524	DIRTY RAGS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110863-01	DMSA0110525	OILY PADS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110864-01	DMSA0110548	DRUM OF OILY RAGS AND ABSORBENTS	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110865-01	DMSA0110549	CUTLER HAMMER CONTACTOR	0.5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110869-01	DMSA0216648	EMPTY DRUM	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	110870-01	DMSA0216649	COLLECTION CONTAINER	100	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/25/01	9/25/01	
ZONE 1	111323-01	DMSA0216666	55 GAL DRUM CONTAINING WATER	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1/17/02	1/17/02	
ZONE 1	111509-01	DMSA0216667	55 GAL DRUM CONTAINING DECANTED WAT	7.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1/18/02	1/18/02	
Summary for OS-03 ( 29 RFDs )				356.7 Ft3										
Grand Total ( 29 RFDs )				356.7 Total Ft3										

Monday, June 24, 2002

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Legend					
asb	Asbestos	Char	Characterization Date	fis	Fissionable
Gen	Generation Date	llw	Low Level Waste	Ind	Landfill
mix	Mixed Waste	rcra	Resource Conservation Recovery Act	tsca	Toxic Substances Control Act

## OS-03 DMSA INVENTORY

Description	Original RFD #	Material Classification	Column #	Barcode	# Items	Estimated Volume (ft <sup>3</sup> )	Estimated Weight (lbs)	Material Transferred to USEC
Oily Rags	110639	LLW	Zone 1	DMSA0110526	1	7.4	80	No
Oily Rags	110640	LLW	Zone 1	DMSA0110527	1	7.4	90	No
Oily Rags and Absorbent Mats	110641	LLW	Zone 1	DMSA0110528	1	7.4	80	No
Floor Sweep	110642	LLW	Zone 1	DMSA0110529	1	7.4	90	No
Oil Soaked Boom	110643	LLW	Zone 1	DMSA0110530	1	7.4	100	No
Oily Rags and Pads	110644	LLW	Zone 1	DMSA0110531	1	7.4	90	No
Oily Rags and Pads	110645	LLW	Zone 1	DMSA0110532	1	7.4	80	No
Fuel Oil Tank	110647	LLW	Zone 1	DMSA0110534	1	60	250	No
Overpacked Opened Drum Contains Plastic Bag of Trash, Metal 5-Gallon Bucket, Plastic and Water	110648	LLW	Zone 1	DMSA0110535	1	11.4	250	No
Oil Soaked Rags and Mats	110650	LLW	Zone 1	DMSA0110538	1	7.4	100	No
Oil Soaked Dirt and Rocks	110851	LLW	Zone 1	DMSA0110537	1	7.4	100	No
Clean Oil Absorbent	110852	LLW	Zone 1	DMSA0110539	1	7.4	100	No
Oily Rags and Rags	110853	LLW	Zone 1	DMSA0110540	1	7.4	100	No
Oily Pads	110854	LLW	Zone 1	DMSA0110541	1	7.4	100	No
Oily Rags and Absorbents	110855	LLW	Zone 1	DMSA0110542	1	7.4	100	No
Oily Rags and Pads	110856	LLW	Zone 1	DMSA0110543	1	7.4	100	no

Subtotal Est.  
Volume (ft<sup>3</sup>)  
**175**

Subtotal Est.  
Weight (lbs)  
**1,810**

Description	Original RFD #	Material Classification	Column #	Barcode	# Items	Estimated Volume (ft <sup>3</sup> )	Estimated Weight (lbs)	Material Transferred to USEC
Oily Rags and Pads (2) Spill Containment Pans	110857	LLW	Zone 1	DMSA0110544	1	7.4	100	No
Empty Drum	110858	LLW	Zone 1	DMSA0110545	1	7.2	25	No
Pads and Absorbent	110859	LLW	Zone 1	DMSA0110546	1	7.4	100	No
Oily Rags from Emergency Generator	110860	LLW	Zone 1	DMSA0110547	1	7.4	150	No
Dirty Rags	110861	LLW	Zone 1	DMSA0110523	1	7.4	150	No
Oily Pads	110862	LLW	Zone 1	DMSA0110524	1	7.4	125	No
Drum of Oily Rags and Absorbents	110863	LLW	Zone 1	DMSA0110525	1	7.4	100	No
Cutler Hammer Contactor	110864	LLW	Zone 1	DMSA0110548	1	7.4	125	No
Empty Drum	110865	LLW	Zone 1	DMSA0110549	1	0.5	50	No
Waste Generation Container	110869	LLW	Zone 1	DMSA0216648	1	7.4	150	No
55-Gallon Drum Containing Water from Drums	110870	LLW	Zone 1	DMSA0216649	1	100	1,500	No
55-Gallon Drum Containing Decanted Water from Drums	111323	LLW	Zone 1	DMSA0216666	1	7.4	450	No
	111509	LLW	Zone 1	DMSA0216667	1	7.4	450	No

*Subtotal Est.  
Volume(ft3)  
181.7*

*Subtotal Est.  
Weight(lbs)  
3,475*

**Grand Totals**

**356.7**

**5,285**